



FACT SHEET 03-01

8-28-03

Dam Safety: Dam Hazard Classification

Classification of dams is defined in the Indiana Code (IC), Section 14-27-7.5. Dams which are exempt from the Indiana Department of Natural Resources (IDNR), Division of Water jurisdiction are defined in Indiana Revised Code, Section 14-27-7.5. The classification system divides dams which are under the jurisdiction of the Division of Water into three classes: high hazard, significant hazard, and low hazard. The dam owner's engineer must determine the hazard classification of the dam during design. The dam owner has the option to have a detailed breach analyses (performed by the owner's hydraulic engineer) to better determine the hazard classification. Classification of dams is necessary to provide proper design criteria and to ensure adequate safety factors for dams according to the potential for downstream damage should the dam fail.

The classification system for dams in Indiana was modeled after the Federal Guidelines for Dam Safety established in 1979. The following parameters are the governing criteria for the classification:

High Hazard - A structure the failure of which may cause the loss of life and serious damage to homes, industrial and commercial buildings, public utilities, major highways, or railroads.

Significant Hazard - A structure the failure of which may damage isolate homes and highways, or cause the temporary interruption of public utility services.

Low Hazard - A structure the failure of which may damage farm buildings, agricultural land, or local roads.

Each dam would be evaluated on the preceding criteria and placed in the highest class that any one of these criteria might meet. The Division of Water, in accordance with the IC Section 14-27-7.5, has the right to reclassify any dam as a result of a change in circumstances not in existence at the time of the initial classification.

A dam is currently exempt from the state's authority under IC Section 14-27-7.5 if it has a drainage area that is not more than one (1) square mile, if it does not exceed twenty (20) feet in height, and if its volume does not exceed more than one hundred (100) acre-feet of water. However, a dam that does not fall under the state's authority is still categorized by the hazard classification system, and will be required to comply with the corresponding safety requirements.

Part 1 of the Indiana Dam Safety Inspection Manual provides additional details on dam hazard classification. Table 1 on page 2 of this Fact Sheet provides guidelines for determining the hazard classification of dams.

Any questions, comments, concerns, or fact sheet requests should be directed to the Division of Water at the following address:

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(317) 232-4160 (Voice) (317) 233-4576 (Fax)
<http://www.in.gov/dnr/water>

Additional Resources

State of Indiana, Department of Natural Resources, Division of Water, *General Guidelines For New Dams & Improvements To Existing Dams In Indiana*

Indiana Code (IC) 14-27-7.5, Chapter 7.5, *Regulation of Dams*

TABLE 1 - HAZARD CLASSIFICATION FOR DAMS

DAMAGE TO:	AREA AFFECTED BY DAM BREACH		
	LOW	SIGNIFICANT	HIGH
LOCATION	<i>Rural or Agricultural</i> Damage would be minimal and would mostly occur on dam owner's property. No building, road, railroad, utility, or individual significantly affected.	<i>Predominantly Rural or Agricultural</i> but roads, buildings, utilities or railroads may be damaged.	<i>Developing or Urban</i> Where individuals could be seriously injured or killed. Buildings, roads, railroads or utilities seriously damaged.
POTENTIAL LOSS OF LIFE Flood depths greater than 1 foot in occupied quarters. Potential of loss of life in recreational areas where adequate warning systems are not available.	<i>No</i>	<i>No</i>	<i>Yes</i>
ROADS County Roads/Single Lane State Roads (serving as the only access to a community), Dual lane State Roads, U.S. and Interstate Roads.	<i>No Damage</i>	<i>May Damage</i> Damage may occur when road surface acts as weir and depth of flow is greater than 2 feet over road.	<i>Serious Damage</i> Interruption of service for more than 1 day.
RAILROADS Operating Railroads	<i>No Damage</i>	<i>May Damage</i> Damage may occur when railroad surface acts as weir and depth of flow is greater than 2 feet over railroad.	<i>Serious Damage</i> Interruption of service for more than 1 day.
BUILDINGS Homes-Single family residences, apartments, nursing homes, motels and hospitals	<i>No Damage</i>	<i>May Damage</i> Any flooding against building	<i>Serious Damage</i> Damage will occur when the product of velocity fps at the building, times the depth of flow compromises the integrity of the structure.
BUILDINGS (cont'd.) Industrial/Commercial/Public (schools, churches, libraries Etc).	<i>No Damage</i>	<i>May Damage</i> Kind, construction and contents of building must be evaluated. General damage may occur at any depth of flooding	<i>Serious Damage</i> Kind, construction, and contents of building must be evaluated. General serious damage can occur at a depth of 3 feet.
UTILITIES	<i>No Damage</i>	<i>May Damage</i> Damage may occur to relatively important utilities when buried lines can be exposed by erosion and when towers, poles and above ground lines can be damaged by undermining or by debris produced from flood plain.	<i>Serious Damage</i> Interruption of service to interstate and intrastate power and communication lines serving towns, communities, and significant military and commercial facilities in which disruption of power and communication would adversely affect the economy, safety, and general well-being of the area for more than 1 day.

Source: Indiana Department of Natural Resources, Division of Water, *General Guidelines for New Dams and Improvements to Existing Dams in Indiana*, 2001 Edition.